

PATENT
Attorney Docket No. YO999-190

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Earl H. BOOTH et al.

Serial No: 09/327,708

Filed: November 17, 1998

For: REPRESENTING, CONFIGURING,
ADMINISTERING, MONITORING, AND/OR
MODELING CONNECTIONS USING CATALOGS
AND MATRIXES

Examiner: Adnan M. MIRZA

Art Unit: 2141

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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Applicant submits this brief pursuant to 37 C.F.R. \$1.192 in furtherance of the Notice of Appeal timely filed in the present Application on October 1, 2004, setting a two-month shortened statutory period of brief filing expiring December 1, 2004.

Please charge Deposit Account 50-0510 the \$330 fee for filing this Appeal Brief. No other fee is believed due with this Appeal Brief, however, should another fee be required please charge Deposit Account 50-0510.

Real Party In Interest

The real party in interest is International Business Machines Corporation.

Related Appeals And Interferences

None.

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Status of Claims

Claims 1-45 and 91-96 are pending in the present application. Claims 46-87 are withdrawn. It is noted that claims 88-93 were renumbered in the Final Office Action to claims 91-96.

Claims 1-45 and 91-96 are appealed herein, with claims 1 and 91 being independent claims.

Appendix A contains a listing of the claims.

Status of Amendments

No amendments to the claims were made after the Final Office Action of July 1, 2004.

Summary of the Invention

The claimed invention is directed to methods for intuitively representing connections of network elements. Application, page 3, line 20 - page 4, line 2. A network element is a start or endpoint of a connection. Application, page 3, lines 9-10 and Fig. 1.

The invention lists network elements into named sets called "catalogs." Application, page 3, line 13. Furthermore, catalogs may themselves include other catalogs. Application, page 3, lines 13-16. Thus, catalog/elements can be embedded within other catalog/elements. Application, page 12, lines 5-8.

In accordance with the invention, a matrix is created between one or more catalogs, wherein the intersections of cells within the matrix represent connections. Application, page 9, lines 11-26 and Fig. 3. Multiple connections between the same endpoints are created within the intersection block by logically "stacking" the intersection blocks. Application, page 10, lines 16-18 and Fig. 4. Connection information may further be embedded inside the matrix and a user views such information by selecting corresponding cells. Application, page 12, lines 5-27 and Fig. 6.

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Issues

1. Whether claims 1-45 and 91-96 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,563,793 to Golden et al. (hereinafter "Golden") and U.S. Patent No. 5,870,558 to Branton Jr et al. (hereinafter "Branton").

Grouping of Claims

Claims 1-45 and claims 91-96 are grouped together for the purpose of this appeal. Claims 1-45 do not stand or fall together with claims 91-96. Similarly, claims 91-96 do not stand or fall together with claims 1-45.

Argument

I. Claims 1-45 and Claims 91-96 do not Stand or Fall Together

If an appealed ground of rejection applies to more than one claim and appellant considers the rejected claims to be separately patentable, the appellant is required to present reasons why they are considered separately patentable. MPEP 1206.

In the present Application, claims 1 and 91 are independent claims. Neither claim encompasses the same subject matter as the other. For example, claim 91 is less restrictive than claim 1 in that claim 91 requires at least one catalog to create a matrix of elements, while claim 1 requires two catalogs. On the other hand, claim 91 also recites instantiating connections if a connection representation and employing the matrix in a network action, limitations not found in claim 1. Furthermore, claims 1 and 91 were rejected under different grounds. See Final Office Action, paragraphs 2 and 47.

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II. Golden and Branton do not Teach or Suggest all the Claim Limitations

A *prima facie* case for obviousness can only be made if the combined reference documents teach or suggest all the claim limitations. MPEP 2143.

Claims 1-45

Claim 1 of the present Application is a method for representing the interconnections of elements on a network and recites, in part, "providing a first catalog for a first subset of said elements, and providing a second catalog for a second subset of said elements." In rejecting claim 1, the Final Office Action states that these claim limitations are disclosed by Golden at col. 5, lines 60-67. Final Office Action, paragraph 2.

Golden appears to disclose a technique for providing guaranteed quality and/or class of service in a computer network. Golden, col. 1, lines 11-21. The cited text alleged by the Examiner to teach the above limitations of claim 1 reads,

According to a further aspect of the invention, an apparatus according to the invention further includes a network control system server coupled to different local area networks and also coupled to controllable network elements within an interconnection path between the local area networks. Enterprise control points within the network are further adapted to communicate with the network control system server. Golden, col. 5, lines 60-67.

The Applicant respectfully submits, however, that this passage is completely devoid of any discussion of providing a first catalog for a first subset of said elements, and providing a second catalog for a second subset of said elements, as recited in claim 1.

The Examiner attempts to reconcile the differences between claim 1 and Golden by stating that one of ordinary skill in the art "can interpret the Local Area Networks as groups or catalogs of different network elements." Final Office Action, paragraph

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54. The Applicant respectfully counters that the Examiner provides no evidence for such a statement.

The Applicant further counters that the Examiner's statement is a gross mischaracterization of claim 1. Claim 1 recites catalogs of subsets of elements, not "groups or catalogs of different network elements." Such an inaccuracy implies that the Examiner equates catalogs with groups. A catalog is a list or enumeration of items, whereas a group is an assemblage of two or more items. See, for example, Webster's Ninth New Collegiate Dictionary, 1989. Contrary to the Examiner's assertion, it is therefore respectfully submitted that a Local Area Network cannot be interpreted as a catalog or list of network items.

Claim 1 further recites, in part, "forming a connection representation for at least a subset of the pairs." The Final Office Action cites Golden at col. 9, lines 60-67 as disclosing these claim limitations. Final Office Action, paragraph 2.

The cited passage of Golden is concerned with "determining the overall capacity of the first available path by determining from network elements registry 57 whether the minimum bandwidth available through each link, switch, and switch port in the path will be sufficient to fulfill the bandwidth and quality of service requested for the connection." Golden, col. 9, lines 60-67. The Applicant respectfully submits that Golden, in the Examiner's cited passage or elsewhere, does not mention forming a connection representation. Unfortunately, the Final Office Action makes no attempt beyond citing the disparate passage to justify the Examiner's conclusion that forming a connection representation for at least a subset of the pairs is taught or suggested by Golden.

Claim 1 also recites, in part, "creating a matrix of connection cells formed by an intersection of a pair of elements." The Final Office Action alleges that although Golden does not disclose this claim element, such limitations can be found in Branton at col. 15, lines 52-59. Final Office Action, paragraph 2.

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Branton appears to be directed toward a system and method for using a graphical user interface to remotely monitor and configure network elements. Branton, col. 1, lines 63-66. Again, the Applicant respectfully submits that nothing in the cited passage of Branton or elsewhere appears to teach or suggest creating a matrix of connection cells formed by an intersection of a pair of elements.

Specifically, the passage cited by the Examiner states,

A process that can be used to merge data into the master database table in the database 290 will now be described with reference to the flowchart in FIG. 10. The master database table typically contains the latest available information pertaining to the network elements within the telecommunications network. This table gets updated periodically with the information from the controllers 271-273 pursuant to processed work requests. Branton col. 15, lines 52-59.

The process depicted in FIG. 10 is used to permanently store results from completed controller work requests into the master database table in the database (not to create a matrix of connection cells). Branton, col. 15, lines 59-62. Furthermore, absent from the above passage is of any teaching or suggestion of creating a matrix of connection cells formed by an intersection of a pair of elements, and the Examiner offers no arguments reconciling this absence.

Thus, for least these reasons, the Applicant respectfully submits that Golden and Branton, either alone or in combination, do not teach or suggest all the claim limitations of claim 1. Moreover, the Appellant believes that the rejection of claim 1 is improper and respectfully requests that the rejection of claim 1 be reversed by the Board.

Claims 2-45 are dependent on and further limit claim 1. Since claim 1 is believed allowable, claims 2-45 are believed allowable for at least the same reasons as claim 1. The Appellant therefore requests that the Board reverse the rejection of claims 2-45.

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Claims 91-96

Claim 91 recites, in part, "creating a matrix of catalog elements for the data elements of at least one of said at least one data catalog; forming a connection representation between pairs of elements in each said at least one data catalog; instantiating connections in the connection representation; and employing the matrix in a network action." In rejecting claim 91, the Final Office Action alleges that these claim limitations are disclosed by Golden at col. 8, lines 16-23. Final Office Action, paragraph 47. The Applicant respectfully disagrees with the Examiner's assertions.

Golden at col. 8, lines 16-23 states,

As the functionality of ECP 50 is shown in more detail in FIG. 5, signaling interface function 66 provides the ability to communicate with switches 56 via a reserved signaling channel 58 (described in the co-pending application Ser. No. 09/060,520). Path/device discovery function 60 learns what network elements and paths between endstations exist within the LAN and maintains respective lists of each in network elements registry 57 and path list 59. The network elements include endstations such as host 52 and router 54 and switches such as switches 56, as well as the interfaces between them (e.g. switch ports). Golden, col. 8, lines 16-23.

It is respectfully submitted that the passage cited by the Examiner does not teach or suggest creating a matrix of catalog elements for the data elements of at least one data catalog, forming a connection representation between pairs of elements in each data catalog, instantiating connections in the connection representation, and employing the matrix in a network action. Moreover, no support other than the passage citation is presented in the Final Office Action for the Examiner's position.

Thus, for least these reasons, the Applicant respectfully submits that Golden and Branton, either alone or in combination, do not teach or suggest all the claim limitations of claim 91. Moreover, the Appellant believes that the rejection of claim 91 is

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improper and respectfully requests that the Board reverse the rejection of claim 91.

Claims 92-96 are dependent on and further limit claim 91. Since claim 91 is believed allowable, claims 92-96 are believed allowable for at least the same reasons as claim 91. The Appellant therefore requests that the Board reverse the rejection of claims 92-96.

III. There is no Motivation to Combine or Modify Golden with Branton

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation to modify the reference or to combine the reference teachings. MPEP 2143. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP 2143 citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

In the Final Office Action, the Examiner argues that it would be obvious to one of ordinary skill in the art "to have incorporated a process that can be used to merge data into the master dataset table in the database [of Branton]." Final Office Action, paragraph 2. It is respectfully submitted, however, that the Examiner offers no evidence to support this conclusion.

The Applicant submits that no motivation to combine or modify Golden with Branton exists. The Examiner combines the teachings of a master database 290 in Branton with the teachings of Golden in rejecting the pending claims. Final Office Action, paragraphs 2 and 47. The master database contains work requests stemming from user service requests. Branton, col. 15, lines 52-54 and lines 59-62. "[E]ach work request specifies a priority, a time/date window, and a list of all of the network elements involved in the work request." Branton, col. 12, lines 34-36.

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Golden, on the other hand, teaches "a technique for adapting an existing packet-switched/routed infrastructure so that on-demand reserved-bandwidth virtual circuit connections with guaranteed QOS and/or COS between any endstations within the network or between networks can be established, while providing interoperation with and improving the performance of existing reservation protocols and frame formats." Golden, col. 1, lines 14-21. It is respectfully submitted that Golden has nothing to do with work requests and no motivation to utilize a database of work requests can be found in Golden. Furthermore, the proposed modification of Golden with Branton would render Golden unsatisfactory for its intended purpose.


For at least these reasons, the Applicant respectfully asserts that the Final Office Action has not established a *prima facie* case of obviousness for claims 1-45 and 91-96. As such, the Appellant respectfully requests that the Board reverse the rejection of claims 1-45 and 91-96.

Conclusion

In view of the foregoing, Appellant submits that the rejections of claims 1-45 and 91-96 are improper and respectfully requests that the rejections of claims 1-45 and 91-96 be reversed by the Board.

Respectfully submitted,

Dated: October 2, 2004


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Appendix A
Pending Claims

Claim 1. A method for representing interconnection of a plurality of elements on a network, the method comprising:

providing a first catalog for a first subset of said elements, and providing a second catalog for a second subset of said elements;

5 creating a matrix of connection cells formed by an intersection of a pair of elements, wherein a first element of each pair is taken from the first catalog and a second element of each pair is taken from the second catalog; and

10 forming a connection representation for at least a subset of the pairs.

Claim 2. A method as recited in claim 1, wherein at least one element is a catalog of sub-elements, and the method further comprises the step of including all sub-elements in the matrix.

Claim 3. A method as recited in claim 1, wherein the network is a communications network and at least a subset of the elements includes routers.

Claim 4. A method as recited in claim 1, wherein the network is an IP network and at least a subset of said elements have an IP protocol stack.

Claim 5. A method as recited in claim 1, wherein at least one particular element in the first catalog is the same as a particular element in the second catalog.

Claim 6. A method as recited in claim 1, wherein at least one of the catalogs includes a plurality of sub-catalogs.

Claim 7. A method as recited in claim 1, wherein at least a portion of the network is a computer network.

Claim 8. A method as recited in claim 1, wherein at least a portion of the network is a virtual network.

Claim 9. A method as recited in claim 1, wherein at least a portion of the network is a network implemented using a layer above a physical layer.

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Claim 10. A method as recited in claim 1, wherein at least a portion of the network is an overlay network.

Claim 11. A method as recited in claim 10, wherein at least a portion of the overlay network is an IPSec network.

Claim 12. A method as recited in claim 10, wherein at least a portion of the overlay network provides Quality of Service.

Claim 13. A method as recited in claim 10, wherein at least a portion of the overlay network is an MPLS network.

Claim 14. A method as recited in claim 1, wherein the network includes VLANs.

Claim 15. A method as recited in claim 1, further comprising the step of configuring at least a portion of the network employing the representation.

Claim 16. A method as recited in claim 1, wherein at least a portion of one catalog is formed using combinatorial operations upon elements of other catalogs.

Claim 17. A method as recited in claim 1, further comprising associating at least one task with at least one connection.

Claim 18. A method as recited in claim 17, further comprising triggering at least said one task as a result of a change of a state of said one connection.

Claim 19. A method as recited in claim 1, wherein at least one of the elements is an abstract entity.

Claim 20. A method as recited in claim 19, wherein an element embodies the attributes of Quality of Service.

Claim 21. A method as recited in claim 19, wherein an element embodies the attributes of security.

Claim 22. A method as recited in claim 1, wherein at least one of the elements is a physical entity.

Claim 23. A method as recited in claim 1, further comprising displaying at least one portion of the matrix.

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Claim 24. A method as recited in claim 1, further comprising monitoring at least one portion of the matrix.

Claim 25. A method of claim 1, wherein the matrix is structured such that elements of a row are different from elements of a column.

Claim 26. A method of claim 25, wherein at a least a portion of the connections form a star network.

Claim 27. A method of claim 1, wherein the matrix is structured such that elements on a the row are identical to elements on a column.

Claim 28. A method of claim 27, wherein at a least a portion of the connections form a mesh network.

Claim 29. A method as recited in claim 2, wherein at least another element is a second catalog of sub-elements and the method further comprises the step of forming a sub-matrix of said one element with said another element.

Claim 36. A method as recited in claim 1, further comprising employing a wizard to form at least a subset of the elements.

Claim 31. A method as recited in claim 1, further comprising initializing all connections to a connected state.

Claim 32. A method as recited in claim 1, further comprising employing a wizard to determine which connections to be brought to a connected state.

Claim 33. A method as recited in claim 1, further comprising initializing all connections to a non-connected state.

Claim 34. A method as recited in claim 1, further comprising choosing at least one pair upon which a manipulation is performed.

Claim 35. A method as recited in claim 34, further comprising modifying at least one changeable attribute of the connection.

Claim 36. A method as recited in claim 35, further comprising causing an inheritable change to be inherited by a group of inheritors.

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Claim 37. A method as recited in claim 36, wherein a first element is a first gateway, a second element is a second gateway, and the attribute is setting a security policy, and the step of causing causes the security policy to be set at all elements included in the first and second gateway.

Claim 38. A method as recited in claim 36, wherein a first element is a catalog of sub-elements, and the attribute is setting a Quality of Service policy, and the step of causing causes the Quality of Service policy to be set at all sub-elements of the first element.

Claim 39. A method as recited in claim 6, wherein a sub-catalog includes other sub-catalogs.

Claim 40. A method as recited in claim 1, further comprising monitoring at least a portion of a network state in accordance with the representation.

Claim 41. A method as recited in claim 40, further comprising displaying at least a portion of the network state.

Claim 42. A method as recited in claim 41, wherein the step of displaying includes employing color codes for showing attributes.

Claim 43. A method as recited in claim 1, further comprising the step of modeling connections.

Claim 44. A method as recited in claim 41, further comprising indicating changes in performance in response to an occurrence.

Claim 45. A method as recited in claim 1, wherein a least one element of a particular pair is a sub-catalog, the method further comprising expanding elements of the pair into a sub-matrix.

Claim 91. A method for representing on a display a connection representation, the method comprising:

- forming at least one catalog of data elements;
- creating a matrix of catalog elements for the data elements of at least one of said at least one data catalog;
- forming a connection representation between pairs of elements in each said at least one data catalog;

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instantiating connections in the connection representation; and employing the matrix in a network action.

Claim 92. A method as recited in claim 88, wherein the network action includes an action taken from a group of actions including monitoring, problem determination, tuning and modeling.

Claim 93. A method as recited in claim 88, wherein at least one catalog of is a catalog of elements considered for interconnection by themselves.

Claim 94. A method as recited in claim 88, further comprising manipulating catalog elements to create at least one new catalog from a union of existing catalogs.

Claim 95. A method as recited in claim 88, further comprising employing an operation taken from a group of operations consisting of: typing, ordering, adding, moving and deleting to and from one or more catalogs.

Claim 96. A method as recited in claim 92, wherein the operation of typing is a catalog class taken from a group of classes consisting of: Endpoint catalog; Tunnel catalog; Encryption methods catalog; Validity catalog; Action catalog; and Traffic Loading catalog.

Claim 97. A method as recited in claim 92, wherein the operation of typing is a catalog class taken from a group of classes consisting of: Endpoint catalog; Tunnel catalog; Encryption methods catalog; Validity catalog; Action catalog; and Traffic Loading catalog.